UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF VIRGINIA

Norfolk Division

BASF PLANT SCIENCE, LP, Plaintiff, v. COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, Defendant.	)	C.A. No. 2:17-CV-503-HCM
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION, GRAINS RESEARCH AND DEVELOPMENT CORP., AND NUSEED PTY LTD., Plaintiffs-Counterclaimants, v. BASF PLANT SCIENCE, LP, AND CARGILL, INCORPORATED, Defendants-Counterdefendants, BASF PLANT SCIENCE GMBH, Counter-Counterclaimant.	)	

OPPONENTS' BRIEF IN SUPPORT OF THEIR RENEWED MOTION FOR JUDGMENT AS A MATTER OF LAW UNDER FED. R. CIV. P. 50(b) OR, IN THE ALTERNATIVE, FOR A NEW TRIAL PURSUANT TO RULE 59(a)

TABLE OF CONTENTS

I. INTRODUCTION 1

II. LEGAL STANDARD 3

A. Judgment as a Matter of Law Under Federal Rule of Civil Procedure 50 3

B. Request for a New Trial Under Federal Rule of Civil Procedure 59 3

C. Written Description 4

III. ARGUMENT 5

A. Judgment as a Matter of Law 5

1. Lack of Written Description 5

2. Lack of Conception in February 2003 16

3. Co-Ownership Under MTEA 20

B. Alternatively, a New Trial Should Be Granted on the Issues Above 28

IV. CONCLUSION 30

I. INTRODUCTION

Plaintiff and Counterdefendant BASF Plant Science, LP, Counter-Counterclaimant BASF Plant Science GmbH, and Counterdefendant Cargill, Incorporated (collectively, "BASF/Cargill" or "Opponents") hereby renew their motion, under Federal Rule of Civil Procedure 50, for judgment as a matter of law ("JMOL") that: (1) claim 5 of the '579 Patent, claims 1 and 33 of the '357 Patent, claim 5 of the '033 Patent, and claims 2 and 10 of the '880 Patent ("Asserted Group A Claims") are invalid for lack of written description; (2) claim 4 of the '792 Patent ("Asserted Group B Claim") is invalid for lack of written description; (3) the alleged inventions of claim 1 of the '357 Patent and claim 2 of the '880 Patent were not conceived in February 2003; and (4) BASF co-owns the Group A Patents (*i.e.*, the '579, '357, '033 and '880 Patents), the Group D Patent (*i.e.*, the '541 Patent), and the Group E Patent (*i.e.*, the '084 Patent).

First, the Court should grant JMOL of invalidity of the Asserted Group A Claims for lack of written description. Each of the Asserted Group A Claims broadly captures *Brassica* or canola crop plants; and yet, the shared specification mentions canola only three times, among a disclosure of virtually every plant that the inventors could think of. The mere mention of canola in such a laundry list of all possible plants does not satisfy the written description requirement as a matter of law. The evidence adduced at trial demonstrated that the inventors never possessed the invention in canola or any other plant that is not the *Arabidopsis* model plant. The inventors' admitted inability to obtain any long-chain polyunsaturated fatty acids ("LC-PUFAs") in canola until years after the filing of the Group A Patents is proof positive of that fact. No reasonable juror could have concluded otherwise.

Second, the Court should also grant JMOL of invalidity of the Asserted Group B Claim. It is undisputed that the specific combination of enzymes recited in claim 4 is not disclosed

anywhere in the '792 Patent. Instead, the specification merely discloses dozens of enzymes, leaving it to the reader to decide which combinations of them to make. Nowhere does the specification provide "blaze marks" directing a person of ordinary skill in the art ("POSITA") to what is specifically claimed, as Federal Circuit precedent requires to satisfy the written description requirement here.

Third, no reasonable juror could have concluded that the CSIRO inventors conceived of the alleged inventions of the above Group A claims as of February 2003. It is black letter patent law that an inventor's testimony regarding conception must be corroborated. But CSIRO presented no legally sufficient evidence corroborating the bare testimony of its lead inventor, Dr. Singh. The jury's verdict should be overturned as a matter of law.

Fourth and finally, the Court should grant JMOL that BASF co-owns the Group A Patents, the Group D Patent, and the Group E Patent. The jury rightly found that BASF co-owns the Group B Patent. Having reached that conclusion, there was no reasonable basis for the jury to conclude otherwise with respect to the Group A Patents. Just like the Group B Patent, the Group A Patents recite claims with BASF proprietary genes used in the joint constructs prepared by BASF under the Materials Transfer and Evaluation Agreement ("MTEA"). The jury's erroneous verdict was no doubt a result of Proponents' misleading reference to the Group A ***priority application***, which was identified in the MTEA as being owned by CSIRO. Specifically, Proponents made repeated reference to that application in a concerted effort to confuse the jury into believing that the ***later-issued Group A Patents*** were identified in the MTEA as owned by CSIRO, such that it was not possible for BASF to co-own the patents. That BASF co-owns the Group D and E Patents is even more readily apparent. As detailed below, the fatty acid profiles claimed in the Group D and E Patents resulted from the exact construct design

strategy set forth in the MTEA, *i.e.*, using the key enzyme combination of an ω3-specific Δ6 desaturase and fungal Δ15/ω3 desaturase.

In the alternative, BASF/Cargill seek a new trial on these issues pursuant to Fed. R. Civ. P. 59(a).

II. LEGAL STANDARD

A. Judgment as a Matter of Law Under Federal Rule of Civil Procedure 50

"A district court may grant a motion for judgment as a matter of law if the nonmoving party has been fully heard on an issue and the court finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue." *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 807 F. Supp. 2d 544, 550 (E.D. Va. 2011), *aff'd* 694 F.3d 1312 (Fed. Cir. 2012). Judgment as a matter of law is appropriate "if, after considering all of the evidence presented and viewing all reasonable inferences in a light most favorable to the non-movant, the court determines that the facts and inferences point so strongly in favor of the movant that a rational jury could not arrive at a contrary verdict." *DNT, LLC v. Sprint Spectrum LP*, 750 F. Supp. 2d 616, 628 (E.D. Va. 2010) (citing *Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 149-50 (2000)).

B. Request for a New Trial Under Federal Rule of Civil Procedure 59

A district court may grant a new trial to the extent that "the verdict is against the clear weight of the evidence, or is based on evidence which is false, or . . . will result in a miscarriage of justice." *Buckley v. Mukasey*, 538 F.3d 306, 317 (4th Cir. 2008) (internal quotations omitted). A district court may also grant a new trial if a legal error results in prejudice to the moving party. Charles A. Wright & Arthur R. Miller, 11 Federal Practice and Procedure § 2805 (2d ed. 2008). When ruling on a Rule 59 motion, this Court "may make credibility judgments in determining

the clear weight of the evidence." *Lovell v. BBNT Sols., LLC*, 295 F. Supp. 2d 611, 618 (E.D. Va. 2003) (citing *Knussman v. Maryland*, 272 F.3d 625, 647 (4th Cir. 2001)).

C. Written Description

"To fulfill the written description requirement, a patent owner must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and demonstrate that by disclosure in the specification of the patent." *E.g., Idenix Pharm. LLC v. Gilead Scis. Inc.*, 941 F.3d 1149, 1163 (Fed. Cir. 2019) (internal quotations omitted). Where a specification discloses a broad "laundry list" of possibilities, such a disclosure would not "reasonably lead" those skilled in the art to any particular species. *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571 (Fed. Cir. 1996); *see also Purdue Pharma L.P. v. Iancu*, 767 F. App'x 918, 924 (Fed. Cir. 2019). Where a specification discloses a broad genus, the claims to a specific species are invalid if the specification "fails to provide sufficient blaze marks to direct a POSA" to the claimed species. *Idenix*, 941 F.3d at 1164; *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1346–47 (Fed. Cir. 2013); *Boston Sci. Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1361-63 (Fed. Cir. 2011).

Importantly, the written description requirement exists to prevent inventors from "attempt[ing] to preempt the future before it has arrived." *Billups-Rothenberg, Inc. v. Associated Reg'l & Univ. Pathologists, Inc.*, 642 F.3d 1031, 1036 (Fed. Cir. 2011). The purpose of the written description requirement is to "ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1353–54 (Fed. Cir. 2010) (en banc).

III. ARGUMENT

A. Judgment as a Matter of Law

1. Lack of Written Description

a) No Reasonable Jury Could Conclude the Inventors Had Possession of the Claimed Group A Invention in Canola

The evidence presented at trial established, as a matter of law, that the Asserted Group A Claims are invalid for lack of written description. Each of the Asserted Group A Claims is directed to either *Brassica* crop plants or broadly to any plant. But, the evidence showed conclusively that the inventors were only able to achieve nominal amounts of LC-PUFAs in a laboratory model plant, *Arabidopsis*. *E.g.*, JX-10 at Tables 6, 7, 10 (CSI00009754-56, CSI00009762), Ex. 1 hereto; 10/24/19 Trial Tr. at 1327:8-1328:11 (Murphy Direct), Ex. 2 hereto; 10/29/19 Trial Tr. at 1663:25-1665:4, 1666:14-24 (Singh Rebuttal Cross), Ex. 3 hereto. There is nothing in the patent specification that conveys to a POSITA that the inventors possessed a genetically-modified *canola crop plant* that makes LC-PUFAs.

Indeed, each of the examples in the patents is directed to *Arabidopsis*. *Id.*; 10/24/19 Trial Tr. at 1327:3-1328:2 (Murphy Direct), Ex. 2. In the 139-page, 218-column specification, there are no working examples—or even prophetic examples of what the inventors expected to achieve in the future—relating to production of LC-PUFAs in canola or any other non-*Arabidopsis* plant. 10/24/19 Trial Tr. at 1328:6-11 (Murphy Direct), Ex. 2; 10/30/19 Trial Tr. at 1850:15-18 (Kunst Rebuttal Cross), Ex. 4 hereto. To the contrary, the specification focuses entirely on the model plant *Arabidopsis*. 10/24/19 Trial Tr. at 1327:3-1328:2 (Murphy Direct), Ex. 2.

The *only* disclosure of *Brassica* or canola in the specification is in three laundry lists of essentially every plant that could theoretically be transformed in an attempt to produce LC-PUFAs. 10/24/19 Trial Tr. at 1328:15-19 (Murphy Direct), Ex. 2; *see also* 10/30/19 Trial Tr. at

1850:15-18 (Kunst Rebuttal Cross), Ex. 4. The first list broadly includes over 35 different plants across a wide range of possibilities:

> The plants of the invention may be: corn (*Zea mays*), canola (*Brassica napus*, *Brassica rapa* ssp.), flax (*Linum usitatissimum*), alfalfa (*Medicago sativa*), rice (*Oryza sativa*), rye (*Secale cerale*), sorghum (*Sorghum bicolour*, *Sorghum vulgare*), sunflower (*Helianthus annus*), wheat (*Tritium aestivum*), soybean (*Glycine max*), tobacco (*Nicotiana tabacum*), potato (*Solanum tuberosum*), peanuts (*Arachis hypogaea*), cotton (*Gossypium hirsutum*), sweet potato (*Lopmoea batatus*), cassava (*Manihot esculenta*), coffee (*Cofea* spp.), coconut (*Cocos nucifera*), pineapple (*Anana comosus*), citris tree (*Citrus* spp.), cocoa (*Theobroma cacao*), tea (*Camellia senensis*), banana (*Musa* spp.), avocado (*Persea americana*), fig (*Ficus casica*), guava (*Psidium guajava*), mango (*Mangifer indica*), olive (*Olea europaea*), papaya (*Carica papaya*), cashew (*Anacardium occidentale*), macadamia (*Macadamia intergrifolia*), almond (*Prunus amygdalus*), sugar beets (*Beta vulgaris*), oats, or barley.

E.g., JX-10 at col. 39:66-40:16 (CSI00009745), Ex. 1; 10/24/19 Trial Tr. at 1328:13-1329:24 (Murphy Direct), Ex. 2.

The second list similarly includes a wide range of plants, plants with oil in its fruit, and vegetables:

> In one embodiment, the plant is an oilseed plant, preferably an oilseed crop plant. As used herein, an 'oilseed plant' is a plant species used for the commercial production of oils from the seeds of the plant. The oilseed plant may be oil-seed rape (such as canola), maize, sunflower, soybean, sorghum, flax (linseed) or sugar beet. Furthermore, the oilseed plant may be other Brassicas, cotton, peanut, poppy, mustard, castor bean, sesame, safflower, or nut producing plants. The plant may produce high levels of oil in its fruit, such as olive, oil palm or coconut. Horticultural plants to which the present invention may be applied are lettuce, endive, or vegetable brassicas including cabbage, broccoli, or cauliflower. The present invention may be applied in tobacco, cucurbits, carrot, strawberry, tomato, or pepper.

E.g., JX-10 at col. 40:17-30 (CSI00009745), Ex. 1; 10/24/19 Trial Tr. at 1329:25-1331:3 (Murphy Direct), Ex. 2.

The last list discloses that the "preferabl[e]" plants of the invention include a far-ranging list of 15 different plants, including plants like sorghum and beets that are not even oilseed plants:

> Preferably, the seed is derived from an oilseed plant. More preferably, the oilseed plant is oilseed rape (*Brassica napus*), maize (*Zea mays*), sunflower (*Helianthus annuus*), soybean (*Glycine max*), sorghum (*Sorghum bicolor*), flax (*Linum usitatissimum*), sugar (*Saccharum officinarum*), beet (*Beta vulgaris*), cotton (*Gossypium hirsutum*), peanut (*Arachis hypogaea*), poppy (*Papaver somniferum*), mustard (*Sinapis alba*), castor bean (*Ricinus communis*), sesame (*Sesamum indicum*), or safflower (*Carthamus tinctorius*).

E.g., JX-10 at col. 11:6-14 (CSI00009731), Ex. 1; *see also* 10/24/19 Trial Tr. at 1392:21-25 (Murphy Cross), Ex. 2 (noting that certain plants listed are not even oil seed crops). This list is so broad that it renders the notion of a "preferabl[e]" plant entirely meaningless. *Id.* at 1328:12-1332:2 (Murphy Direct).

A POSITA would not understand from such a laundry list that the inventors were in possession of the claimed plant—a *canola plant* that makes EPA and DHA. *Id.* at 1329:5-1331:25 (Murphy Direct). Such scant and non-descript disclosure—with no supporting data whatsoever—does not satisfy the written description requirement as a matter of law. Federal Circuit precedent is clear that "[s]uch 'laundry list' disclosures do not provide adequate specificity to constitute written description support" for one option on that list. *Purdue Pharma L.P.*, 767 F. App'x at 924; *see FWP IP ApS v. Biogen MA, Inc.*, 749 F. App'x 969, 977 (Fed. Cir. 2018) (finding that the "large number of disease conditions, dosages, dosing schedules, active ingredients, pharmaceutical formulations for controlled release, and combinations thereof covered by the original claims detracts from Forward's argument that it possessed and invented the now-claimed, specific MS treatment."); *Fujikawa*, 93 F.3d at 1571 ("[A] 'laundry list' disclosure of every possible moiety for every possible position" is not "a written description of every species in the genus . . . because such a disclosure would not 'reasonably lead' those skilled in the art to any particular species."). Indeed, district courts have applied that rule in similar circumstances to find a lack of written description. *Charleston Med. Therapeutics, Inc. v. AstraZeneca Pharm. LP*, No. 2:13-CV-2078-RMG, 2016 WL 7030743, at *12 (D.S.C. Feb. 19,

2016) ("No reasonable factfinder could find that Dr. Singh had actually invented a method of treating the 90+ listed diseases, rather than stating a hypothesis."); *Phigenix, Inc. v. Genentech Inc.*, 238 F. Supp. 3d 1177, 1187 (N.D. Cal. 2017) ("The entire 2005 provisional application contains only one mention of breast cancer, in a laundry list of about 38 different types of conditions. This alone cannot constitute adequate written description for the limitations of 'treating a breast condition' or 'MIN.'").

The omission of a jury instruction regarding "laundry list" disclosures was unfairly prejudicial. The jury was instructed—at Proponents' behest and over Opponents' objections—that "[t]he written description requirement does not require Proponents to prove to the skilled reader that the invention works." 10/31/19 Trial Tr. at 2040:11-13 (Jury Instructions), Ex. 5 hereto. That instruction deviated from the model instruction, but the Court did not allow for additional instructions from BASF to put Proponents' instruction in proper context. 10/30/19 Trial Tr. at 1937:21-1940:6; 1945:14-1946:16, Ex. 4. Notably, the Court denied Opponents' request to include a clarifying instruction that a "mere disclosure of a 'laundry list' of options does not provide adequate specificity to constitute sufficient written description of one option on the list." *Id.*; *see also* ECF No. 764 at 26 (Opponents' proposed jury instruction on written description). Respectfully, the inclusion of Proponents' instruction (a fact that was touted in Proponents' closing argument) (*see* 10/31/19 Trial Tr. at 2056:14-16 (Closing Arguments), Ex. 5) and the omission of Opponents' instruction confused the jury by suggesting that Proponents were correct on the law, and that Opponents were wrong.

To the extent Proponents contend that it would have been obvious to a POSITA that the description of *Arabidopsis* was a model or surrogate for the other plants identified in the laundry list (including the canola species), that too is insufficient to satisfy the written description

requirement as a matter of law. The Federal Circuit has clearly held that "a description that merely renders the invention obvious does not satisfy the requirement" of written description. *Ariad Pharm., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc); *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) ("The question is not whether a claimed invention is an obvious variant of that which is disclosed in the specification.").

The law is clear that disclosure of data in *Arabidopsis* is insufficient to provide written description of the claimed invention in canola, or any of the other plants identified in the laundry list, especially given the unpredictability of the art at issue. *See, e.g., Synthes USA, LLC v. Spinal Kinetics, Inc.*, 734 F.3d 1332, 1344–45 (Fed. Cir. 2013) ("[I]f the art is unpredictable, then disclosure of more species is necessary to adequately show possession of the entire genus."). In defending against the obviousness of the claimed invention, Proponents' witnesses testified that the relevant art is unpredictable. 10/18/19 Trial Tr. at 560:16-561:9, 586:6-24 (Singh Direct), Ex. 6 hereto; 10/29/19 Trial Tr. at 1765:3-1766:24 (Kunst Rebuttal Direct), Ex. 3. Although the biosynthetic pathway of LC-PUFAs was well-known as of 2005, Proponents insisted that obtaining LC-PUFAs in crop plants such as canola was a major challenge at the time. Indeed, Proponents' expert, Dr. Kunst, testified that when she heard about the LC-PUFA project for the first time, she thought it was "very unrealistic" and "far-fetched." 10/29/19 Trial Tr. at 1766:4-24 (Kunst Rebuttal Direct), Ex. 3.

Likewise, years after CSIRO's 2005 patent filing, Proponent and fellow Australian government agency GRDC still viewed CSIRO's undemonstrated ability to actually obtain LC-PUFAs from canola as a major risk for GRDC's investment in the project. *See* PX-213 at GRD00015585, Ex. 7 hereto (among "Key Risks" of GRDC investment identified in 2007

business case analysis, "[t]echnology does not work in appropriate oilseed, only works in Arabidopsis."); PX-214 at GRD00007012, Ex. 8 hereto (2010-11 GRDC investment plan created in 2009, stating "[i]t is expected that proof-of-concept for the production of omega-3 LC-PUFAs in canola will be achieved by project end at 30 June 2010" but recognizing, among three potential paths for GRDC's investment, that if "[p]roof of concept is not achieved" then GRDC would cease its investment.). In such an unpredictable field, a POSITA would not have understood the inventors possessed the claimed invention in canola based solely on data from the *Arabidopsis* model plant. 10/24/19 Trial Tr. at 1331:14-1332:2 (Murphy Direct), Ex. 2.

As established at trial, *Arabidopsis* and canola are very different. *Arabidopsis* is an academic model plant while canola is a commercial crop plant. 10/21/19 Trial Tr. at 704:4-10, 705:10-11, 757:14-17 (Singh Cross), Ex. 9 hereto; 10/22/19 Trial Tr. at 941:20-25, 942:17-22, 944:20-945:14 (Andre Direct), Ex. 10 hereto; 10/24/19 Trial Tr. at 1308:16-1309:6, 1318:12-1319:21 (Murphy Direct), Ex. 2; 10/29/19 Trial Tr. at 1743:8-16 (Kunst Rebuttal Direct), Ex. 3. Such evidence further supports that the patents lack written description. *See, e.g.*, *Synthes USA, LLC*, 734 F.3d at 1341-43 (testimony that moving from a product with "peripheral grooves" to a product with "slots" was not a "simple substitution" supported jury's finding that claims lacked written description). There are major differences between the two plants in their seed oil, physical properties (including starting fatty acid profile), and genetic makeup. Opponents' expert, Dr. Murphy, explained that *Arabidopsis* seeds, unlike canola seeds, have only "a very small amount of oil." 10/24/19 Trial Tr. at 1318:12-18 (Murphy Direct), Ex. 2. Proponents' expert, Dr. Kunst, agreed: "*Arabidopsis* is not a crop, so it has tiny little seeds that would not generate much oil." 10/29/19 Trial Tr. at 1743:8-16 (Kunst Rebuttal Direct), Ex. 3.

It is likewise undisputed that *Arabidopsis* and canola have very different physical properties, and importantly, very different starting fatty acid profiles. 10/24/19 Trial Tr. at 1318:20-1321:19 (Murphy Direct), Ex. 2; *see also* 10/22/19 Trial Tr. at 943:1-16, 944:20-945:22 (Andre Direct), Ex. 10. Dr. Murphy's unrebutted testimony made clear that "[*Arabidopsis* and canola] contain very different types of oil, so they're not comparable directly. They make different fatty acids." 10/24/19 Trial Tr. at 1319:19-21 (Murphy Direct), Ex. 2. Moreover, *Arabidopsis* and canola are genetically distinct, requiring drastically different methods for the introduction of new genes to "transform" the plants. *Id.* at 1323:23-1324:13 (Murphy Direct); *see also* 10/22/19 Trial Tr. at 946:2-25 (Andre Direct), Ex. 10.[1]

Consistent with a POSITA's understanding that the inventors were ***not*** in possession of the claimed invention in canola as of 2005, CSIRO failed for years after filing its first patent application to make any LC-PUFAs in canola. "[E]vidence that Plaintiffs may have failed to make a purported embodiment of the patent-in-suit is probative of whether the inventors of the patent-in-suit were in possession of the claimed subject matter as of the filing date; *i.e.*, the evidence is probative of Defendant's written description defense." *Idenix Pharms. LLC v. Gilead Scis., Inc.*, Nos. 13-1987-LPS, 14-109-LPS, 14-846-LPS, 2016 WL6901742, at *2 (D. Del. Nov. 22, 2016).[2] "Patents are not rewarded for mere searches, but are intended to

[1] At trial, Dr. Singh insisted that *Arabidopsis* and canola are very similar because they are in the same taxonomic family called *Brassicaceae*. 10/21/19 Trial Tr. 624:10-15 (Singh Direct), Ex. 9. But on cross examination, Dr. Singh admitted that the *Brassicaceae* family broadly includes over 4,000 diverse plants, including non-oilseed plants such as broccoli, cabbage, radishes, arugula, cauliflower, and Brussels sprouts. *Id.* at 704:4-705:15 (Singh Cross).

[2] *See also Wyeth v. Abbott Labs.*, Nos. 08-230 (JAP), 08-1021(JAP), 2012 WL 175023, at *8 (D.N.J. Jan. 19, 2012) (citing inventor testimony that neither inventor had performed the claimed method of treatment or knew how to do so and concluding "[l]ogically, the inventors could not have described a knowledge that they did not possess.") (quoting *Boston Sci. Corp. v. Johnson & Johnson Inc.*, 679 F. Supp. 2d 539, 555 (D. Del. 2010)).

compensate their successful completion. That is why the written description requirement incentivizes actual invention." *Nuvo Pharms. (Ir.) Designated Activity Co. v. Dr. Reddy's Labs. Inc.*, 923 F.3d 1368, 1381 (Fed. Cir. 2019) ("A mere wish or plan for obtaining the claimed invention is not adequate written description.") (internal citations omitted).

Here, CSIRO's lead inventor and the project leader of CSIRO's LC-PUFA project, Dr. Singh, testified they were unable to achieve *any* omega-3 LC-PUFAs in canola until at least five years after the Group A Patents were filed. *See, e.g.*, 10/21/19 Trial Tr. at 698:25-699:2 (Singh Cross), Ex. 9 ("Q. Dr. Singh, the earliest CSIRO was able to make LC-PUFAs in canola was at the end of 2009; is that correct? A. Yes."); *see also id*. at 759:20-760:25 (Singh Cross), 761:13-762:5 (Singh Cross); 10/29/19 Trial Tr. at 1690:15-17 (Singh Rebuttal Cross), Ex. 3. He further admitted that proof of concept to get LC-PUFAs from canola was not achieved even as of May 2009. *Id.* at 1688:19-24 (Singh Rebuttal Cross). Proponents' expert, Dr. Kunst, likewise testified that it took years after CSIRO's initial data in *Arabidopsis* to get LC-PUFAs in canola. 10/18/19 Trial Tr. 476:14-18, Ex. 6 ("Q. And although you may not be clear on exactly what the time frame was, you understand that it took years between the time that CSIRO achieved any DHA in Arabidopsis and when it achieved it in canola, right? A. That's right.").

Contemporaneous CSIRO documents further demonstrated that the inventors did not have possession of their claimed invention in canola until years after the Group A Patents were filed. *See, e.g.*, CX-1359 at GRD00000004 (2009 CSIRO Progress Report), Ex. 11 hereto (Dr. Singh reporting to GRDC that CSIRO's "first generation construct [in canola] did not detect any presence of any LC-PUFA," and that CSIRO was finally able to achieve LC-PUFAs in canola in its second generation constructs only after their collaboration with BASF); PX-318 (CSIRO SWOT analysis document), Ex. 12 hereto (identifying as a weakness of the LC-PUFA project

that CSIRO had not yet achieved "proof of concept" in "target crop" canola as of 2009); PX-214 at GRD00007012 (GRDC investment plan), Ex. 8 ("it is expected that proof-of-concept for the production of omega-3 LC-PUFAs in canola will be achieved by project end at 30 June 2010," five years after the filing of the earliest Group A Patent).

In sum, the mere mention of canola in a laundry list of all possible plants does not satisfy the written description requirement as a matter of law, especially in light of the evidence adduced at trial that the inventors' demonstrated preference in the specification is for *Arabidopsis* and the inventors were not able to obtain LC-PUFAs in canola until many years after the 2005 filing of the Group A Patents. JMOL should be granted.

b) No Reasonable Jury Could Conclude the Inventors Had Possession of the Claimed Combination of the Group B Patent

The evidence presented at trial established, as a matter of law, that the Asserted Group B Claim is also invalid for lack of written description. Claim 4 of the '792 Patent is directed to a very particular combination of four enzymes for producing DHA via the Δ6 pathway, each identified by Sequence ID Numbers. It is ***undisputed*** that the specific four-enzyme combination recited in the claim is not disclosed anywhere in the '792 Patent specification; instead, it was taken from BASF's accused product after CSIRO's collaboration with BASF under the MTEA. 10/22/19 Trial Tr. at 997:12-998:14 (Andre Direct), Ex. 10; 10/21/19 Trial Tr. at 715:18-717:6, 721:22-722:11, 725:8-23 (Singh Cross), Ex. 9. Because the specification generically discloses countless options of enzymes to construct the LC-PUFA production pathway—without any guidance to choose or preference stated for the specific set of enzymes that are claimed—there is no written description as a matter of law.

There is no record evidence to suggest that the inventors ever possessed the specific combination of enzymes recited in claim 4. The specification includes only sparse and scattered

disclosures of the claimed enzymes standing alone, not combined as a set. 10/24/19 Trial Tr. at 1333:5-1334:12 (Murphy Direct), Ex. 2, 10/30/19 Trial Tr. at 1860:4-1869:4 (Kunst Rebuttal Cross), Ex. 4. There is nothing in the specification guiding a POSITA to make the specific combination of four enzymes claimed as opposed to any other combination of enzymes that would make up the LC-PUFA pathway. 10/24/19 Trial Tr. at 1333:10-23 (Murphy Direct), Ex. 2. The specification merely states: "The desaturase, elongase and acyl transferase proteins and genes encoding them that may be used in the invention are ***any of those known in the art or homologs or derivatives thereof.***" JX-12 at col. 32:1-4 (CSI00010365), Ex. 13 hereto (emphasis added). Through its long lists of individual enzymes, the patent essentially permits any possible enzyme combination that anyone could ever come up with, thereby reaching thousands of combinations. 10/24/19 Trial Tr. at 1333:5-1335:16 (Murphy Direct), Ex. 2. This is the quintessential "forest"-type specification—with thousands of options and yet no "blaze marks" directing a POSITA to what is specifically claimed—that the Federal Circuit has held insufficient to satisfy the written description requirement. *See, e.g., Idenix*, 941 F.3d at 1164; *Novozymes*, 723 F.3d at 1349 ("Taking each claim—as we must—as an integrated whole rather than as a collection of independent limitations, one searches the 2000 application in vain for the disclosure of even a single species that falls within the claims or for any 'blaze marks' that would lead an ordinarily skilled investigator toward such a species among a slew of competing possibilities."). Proponents' cherry-picking of individual enzymes from unrelated portions of the patent specification (10/30/19 Trial Tr. at 1860:4-24, 1861:23-1869:24 (Kunst Cross), Ex. 4) is nothing more than a hindsight reconstruction of the claim, which cannot support a finding of written description as a matter of law. *See Novozymes*, 723 F.3d at 1349 (written description cannot be established with hindsight reconstruction using disclosures "plucked selectively" from

the specification). Yet, as discussed, *supra* (at Section III.A.1.a), the inclusion of Proponents' instruction on written description (that "[t]he written description requirement does not require Proponents to prove to the skilled reader that the invention works"), without allowing for additional instructions from BASF to put the new instruction in context, undoubtedly confused the jury into believing that Opponents were wrong on the law.

That the '792 Patent lacks written description of the claimed combination of enzymes makes perfect sense. The claimed enzymes are proprietary to BASF. As readily admitted by both CSIRO's inventors and expert witness, CSIRO did not discover or isolate the enzymes that are now claimed in the '792 Patent, let alone actually use them in the combination that is claimed. 10/28/19 Trial Tr. at 1568:17-19 (Petrie Cross), Ex. 14 hereto; 10/30/19 Trial Tr. at 1861:14-19 (Kunst Rebuttal Cross), Ex. 4; *see also* 10/24/19 Trial Tr. at 1334:20-1335:5 (Murphy Direct), 1340:5-20 (Murphy Direct), Ex. 2. To the contrary, the '792 Patent specification emphasized ***different*** enzymes. *See e.g., id.* at 1333:13-1335:1 (Murphy Direct); 10/30/19 Trial Tr. at 1866:11-1868:14 (Kunst Rebuttal Cross), Ex. 4; *see also Novozymes*, 723 F.3d at 1349 (finding that if the patentee had actually possessed the claimed invention "it surely would have disclosed [it] . . . in the several pages of the 2000 application devoted to listing exemplary solutions"). Further, in finding that the '792 Patent is co-owned by BASF and CSIRO under the MTEA, the jury implicitly found that CSIRO intentionally and improperly targeted BASF's enzymes in the '792 Patent claims that were filed in 2017, about nine years after the filing of the original patent specification.[3] 10/24/19 Trial Tr. at 1334:14-1335:16

[3] Notably, even the earliest filing in the Group B Patent family occurred in November 2008, after the March 2008 start of the BASF-CSIRO collaboration under the MTEA. *See* JX-52 at CSI00106411, Ex. 15 hereto (commencement date of March 1, 2008); JX-12 at CSI00010325, Ex. 13 (earliest provisional application date of November 18, 2008).

(Murphy Direct), Ex. 2; *see* 10/22/19 Trial Tr. at 994:17-995:2 (Andre Direct), 995:13-996:12 (Andre Direct), Ex. 10.

The evidence showed that the inventors never possessed the specific claimed combination of enzymes, and no reasonable jury could conclude otherwise. There are no blaze marks in the '792 Patent specification that lead a POSITA to the claimed combination of enzymes. For those reasons, this Court should grant BASF/Cargill's motion for JMOL that the Asserted Group B Claim is invalid for lack of written description.

2. Lack of Conception in February 2003

This Court should grant JMOL to BASF/Cargill on their claim that the alleged inventions of claim 1 of the '357 Patent and claim 2 of the '880 Patent were not conceived in February 2003 because there was no legally sufficient evidentiary basis for the jury to conclude that CSIRO's lead inventor, Dr. Singh, had conceived of the alleged invention of claim 1 of the '357 Patent and claim 2 of the '880 Patent ("Disputed Claims") in February 2003. In particular, Proponents presented no evidence corroborating Dr. Singh's testimony that, in February 2003, he conceived of the complete and operative LC-PUFA "blueprint" of the Disputed Claims, including using an acyl-CoA desaturase or a bifunctional enzyme, as black letter patent law requires.

Conception is the "touchstone" of inventorship. *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227 (Fed. Cir. 1994). "It is the 'formation in the mind of the inventor, of a definite and permanent idea of ***the complete and operative invention,*** as it is hereafter to be applied in practice.'" *Id.* at 1228 (emphasis added). "The idea must be so clearly defined in the inventor's mind that only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation." *Mahurkar v. C.R. Bard, Inc.*, 79 F.3d 1572, 1577 (Fed. Cir. 1996) (internal quotation marks omitted).

An inventor's testimony regarding conception must be corroborated. *Id.* "[A]n inventor's testimony, standing alone, is insufficient to prove conception." *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1576 (Fed. Cir. 1997). "This rule addresses the concern that a party claiming inventorship might be tempted to describe his actions in an unjustifiably self-serving manner in order to obtain a patent[.]" *Singh v. Brake*, 222 F.3d 1362, 1367 (Fed. Cir. 2000). The rule "provides a bright line for both district courts and the PTO to follow in addressing the difficult issues related to invention dates." *Mahurkar*, 79 F.3d at 1577.

Dr. Singh testified without corroboration that his "lightbulb moment"—conception of the allegedly inventive "blueprint"—occurred in February 2003. 10/18/19 Trial Tr. at 570:24-572:15 (Singh Direct), Ex. 6. He testified that "blueprint" incorporates *all* of the following features: (1) Δ6 pathway to DHA, (2) acyl-CoA desaturases, (3) bifunctional enzymes, (4) DHA production in seeds, and (5) *Brassicaceae* plants. *Id.* at 572:11-15 (Singh Direct); 10/21/19 Trial Tr. at 699:18-700:8 (Singh Cross), 703:1-10 (Singh Cross), 731:23-25 (Singh Cross), 747:4-9 (Singh Cross), Ex. 9. Proponents relied on three documents admitted into evidence to attempt to corroborate a February 2003 conception date: (1) Dr. Singh's lab notebook entry of February 10, 2003 (PX-337, Ex. 16 hereto); (2) a February 23, 2003 funding proposal (CX-0182, Ex. 17 hereto); and (3) a document from April 2003 purporting to be an order form related to a zebrafish enzyme (CX-0184, Ex. 18 hereto). None of those documents, alone or in combination, memorialize the alleged "blueprint" in February 2003, and no reasonable jury could conclude otherwise.

First, taking as true Proponents' own description of Dr. Singh's lab notebook entry of February 10, 2003 (PX-337 at CSI00082093, Ex. 16), that document merely reflects "CSIRO's screening of its gene library for enzymes that function in the delta-6 pathway." ECF No. 768 at

4; 10/21/19 Trial Tr. at 776:2-777:19 (Singh Direct), Ex. 9. There is nothing in that entry about acyl-CoA desaturases, bifunctional enzymes, DHA production in seeds, or *Brassicaceae* plants. "[P]roof of conception requires showing that every limitation of the claim was known to the inventor at the time of conception." *Brunswick Corp. v. United States*, 34 Fed. Cl. 532, 584 (1995), *aff'd*, 152 F.3d 946 (Fed. Cir. 1998). The lab notebook entry does not meet that standard. Further, the entry was not witnessed and signed at the time and there was no corroboration, through documents or witness testimony, presented at trial. PX-337 at CSI00082093, Ex. 16. Thus, the lab notebook "do[es] not provide an 'independent' source of authority," and has "minimum corroborative value," at best. *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1172 (Fed. Cir. 2006).

Second, the February 23, 2003 funding proposal (CX-0182, Ex. 17) is the quintessential "general goal or research plan [the inventor] hopes to pursue," which does not constitute conception as a matter of law. *Burroughs Wellcome Co.*, 40 F.3d at 1228 ("An idea is definite and permanent when the inventor has a specific, settled idea, a particular solution to the problem at hand, not just a general goal or research plan he hopes to pursue."). Dr. Singh admitted as much at trial. 10/21/19 Trial Tr. at 748:3-750:20 (Singh Cross), Ex. 9 (Q. Okay. And this was the research plan that you hoped to pursue, correct? A. Yeah. Yeah. So what we've put down there was, you know, like I said in my direct testimony, that this document, the purpose of this document was to put it in front of our managers."); 10/18/19 Trial Tr. at 579:23-580:7 (Singh Direct), Ex. 6 ("Q. Okay. Have you actually proven that concept at the time that you're writing this in February 2003? A. No, ma'am. We had the blueprint in a concept, if you like, as the idea, but we haven't proven it then in February 2003 when we wrote this document. Q. February 20th, 2003? A. Yeah. We hadn't proven it, no."). Indeed, the funding proposal makes

clear that it was not limited to the Δ6 pathway to DHA that is required by the "blueprint;" it plainly envisions investigating the alternative PKS pathway that is specifically excluded from that "blueprint." CX-0182 at CSI00228227-229, Ex. 17. Even after combining the lab notebook's disclosure with that of the funding proposal, there is still no mention in either document of acyl-CoA desaturases or bifunctional enzymes. PX-337 at CSI00082093, Ex. 16; CX-0182 at CSI00228227-229, Ex. 17; *see also* 10/29/19 Trial Tr. at 1681:3-12 (Singh Rebuttal Cross), Ex. 3.

Third, the last document that CSIRO relies on, an enzyme order form (CX-0184, Ex. 18), is not even from February 2003; it is from two months later, April 28, 2003. That document also does not mention ***any*** of the features of the "blueprint." No reasonable jury could conclude that the enzyme order form supports the conception of an acyl-CoA desaturase or bifunctional enzyme. It is of no moment that the document purports to be an order form related to a zebrafish enzyme. Dr. Singh testified that the inventors used the terms "acyl-CoA" and "bifunctional" when describing their invention in the patent; the word "zebrafish" was insufficient on its own to communicate those features of the invention. 10/29/19 Trial Tr. at 1678:24-1680:5 (Singh Rebuttal Cross), Ex. 3. That CX-0184 lacks the words "acyl-CoA" and "bifunctional" is proof that, as of February 2003, the inventors did not appreciate one or both of those features of the zebrafish enzyme. *See Hitzeman v. Rutter*, 243 F.3d 1345, 1358-59 (Fed. Cir. 2001) ("An inventor who failed to appreciate the claimed inventive features of a device at the time of alleged conception cannot use his later recognition of those features to retroactively cure his imperfect conception.").

Last, Proponents' attempt to corroborate Dr. Singh's inventor testimony with the testimony of another inventor, Dr. Petrie (10/28/19 Trial Tr. at 1491:4-1492:1 (Petrie Direct), Ex.

14), is legally wrong because such testimony is not "independent" of the inventors themselves. *See Medichem, S.A.*, 437 F.3d at 1170 ("The requirement of independent knowledge remains key to the corroboration inquiry."). The Federal Circuit has articulated that "[o]ne consequence of the independence requirement [of corroborative evidence] is that testimony of one co-inventor cannot be used to help corroborate the testimony of another." *Id*. at 1171; *see also Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 968 (Fed. Cir. 2014).

Based on the documentary and testimonial evidence presented at trial, no reasonable jury could have found that Dr. Singh conceived of the alleged inventions of claim 1 of the '357 Patent and claim 2 of the '880 Patent in February 2003. For that reason, this Court should grant BASF/Cargill's motion for JMOL that the alleged inventions were not conceived in February 2003.

3. Co-Ownership Under MTEA

This Court should grant JMOL to BASF/Cargill on their claim that BASF co-owns the Group A Patents, the Group D Patent, and the Group E Patent.

a) BASF Co-Owns the Group A Patents Under the MTEA as a Matter of Law

The jury correctly determined that BASF co-owns the Group B Patent under the MTEA. Having determined that BASF co-owns the Group B Patent, the evidence adduced at trial supports only one conclusion: that BASF co-owns the Group A Patents as well. Just as the Group B Patent claims recite specific enzymes attributed to BASF and used in the joint constructs prepared under the MTEA, the same is true with respect to the Group A Patent Claims. Even drawing all legitimate inferences in favor of Proponents, no reasonable jury could have concluded that BASF does not co-own the Group A Patents.

The '579 and '033 Group A Patent claims recite a *Brassica* plant cell comprising, *inter alia*, a Δ6 elongase with an amino acid sequence set forth as SEQ ID NO: 31 (*i.e.*, Δ6 elongase from *Physcomitrella patens*) and a Δ5 desaturase with an amino acid sequence set forth as SEQ ID NO: 18 (*i.e.*, Δ5 desaturase from *Thraustochytrium ssp.*):

'579 Patent, Claim 7	'033 Patent, Claim 15
A *Brassica* plant cell comprising a polynucleotide which encodes a Δ5 elongase operably linked to a promoter which directs expression of the polynucleotide in the plant cell; a polynucleotide which encodes a **Δ6 elongase which has the amino acid sequence set forth as SEQ ID NO:31**, operably linked to a promoter which directs expression of the polynucleotide in the plant cell; a polynucleotide which encodes a Δ4 desaturase whose amino acid sequence is at least 99.5% identical to the sequence set forth as SEQ ID NO:33, operably linked to a promoter which directs expression of the polynucleotide in the plant cell; a polynucleotide which encodes a **Δ5 desaturase which has the amino acid sequence set forth as SEQ ID NO:18**, operably linked to a promoter which directs expression of the polynucleotide in the plant cell; a polynucleotide which encodes a Δ6 desaturase operably linked to a promoter which directs expression of the polynucleotide in the plant cell; and an exogenous desaturase which desaturates an acyl-CoA substrate.	A *Brassica* plant cell comprising a polynucleotide which encodes a Δ4 desaturase which has the amino acid sequence encoded by a Δ4 desaturase gene from *Pavlova lutheri*, operably linked to a promoter which directs expression of the polynucleotide in the plant cell; a polynucleotide which encodes a **Δ5 desaturase which has the amino acid sequence set forth as SEQ ID NO:18**, operably linked to a promoter which directs expression of the polynucleotide in the plant cell; a polynucleotide which encodes a Δ6 desaturase operably linked to a promoter which directs expression of the polynucleotide in the plant cell; and a polynucleotide which encodes a **Δ6 elongase which has the amino acid sequence set forth as SEQ ID NO:31**, operably linked to a promoter which directs expression of the polynucleotide in the plant cell.

JX-9 at col. 215:54-216:42 (CSI00009696), Ex. 19 hereto; JX-11 at col. 215:41-57 (CSI00010324), Ex. 20 hereto; *see also* JX-9 at col. 16:62-63, col. 17:22-23 (CSI00009596-97), Ex. 19 (defining SEQ ID NO:18 at the Δ5 desaturase from *Thraustochytrium sp.* and SEQ ID

NO:31 as the Δ6 elongase from *Physcomitrella patens*); JX-11 at col. 16:60-61, col. 17:20-21 (CSI00010224-25), Ex. 20 (same).

Schedule A of the MTEA identifies both of those enzymes as belonging to BASF. JX-52 at CSI00106424, Ex. 15 (Schedule A identifying the Δ6 elongase from *Physcomitrella patens* and Δ5 desaturase from *Thraustochytrium ssp*. as BPS or BASF Plant Science Materials); *see also* 10/21/19 Trial Tr. at 716:13-717:17, 720:14-721:12 (Singh Cross), Ex. 9; 10/22/19 Trial Tr. at 996:13-998:2 (Andre Direct), Ex. 10 (confirming the Δ5 desaturase from *Thraustochytrium ssp.* and Δ6 elongase from *Physcomitrella patens* listed in the MTEA were also claimed in the '033 and '579 Group A Patents); ECF No. 821 (Opinion and Order Regarding Remedies) at 16 (the Court finding that "BASF owns the commercial rights to certain genes whose use in the delta-6 pathway is claimed by Proponents in the Group A-2 patents, so Proponents could not commercially sell product based upon those patents without BASF's permission or license."). In fact, the Δ5 desaturase from *Thraustochytrium ssp.* is the very same enzyme recited in the Group B Patent found to be co-owned by BASF:

> '792 Patent, Claim 1: A *Brassica napus* cell comprising exogenous polynucleotides encoding a Δ6 desaturase whose amino acid sequence is set forth as SEQ ID NO:30, a Δ6 elongase, **a Δ5 desaturase whose amino acid sequence is identical to the amino acid sequence encoded by the nucleotide sequence set forth as SEQ ID NO: 131,** a Δ5 elongase whose amino acid sequence is at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 130, and a Δ4desaturase whose amino acid sequence is identical to the amino acid sequence encoded by the nucleotide sequence set forth as SEQ ID NO: 132, wherein each exogenous polynucleotide is operably linked to a promoter that directs expression of said polynucleotide in the cell.

JX-12 at CSI00010470, Ex. 13. Further, there is no dispute that—as with the Group B Patent—the Group A enzymes were used in the joint constructs prepared under the MTEA. JX-52 at

CSI00106428-430, Ex. 15; PX-222 at CSI00106532, Ex. 21 hereto; 10/21/19 Trial Tr. 693:22-694:13 (Singh Direct), Ex. 9.

Proponents did not dispute the evidence at trial showed that any intellectual property subsisting in the MTEA's Joint New Materials and Joint Results is jointly owned by BASF and CSIRO immediately upon its creation. JX-52 at §§ 6, 11.4 (CSI00106415-16; CSI00106419), Ex. 15; *see also* 10/21/19 Trial Tr. at 820:22-821:5 (Adler Cross), Ex. 9; 10/24/19 Trial Tr. at 1307:7, Ex. 2 (Green Dep. at 200:3-16, 200:20-24, 201:1-2, Ex. 22 hereto). The MTEA defines "Joint New Materials" as constructs containing both CSIRO and BASF genes. "Joint Results" is defined as results with respect to Joint Transformed Lines and Joint New Materials. As explained above, the '579 and '033 Group A Patents—just like the Group B Patent—arise from the Joint New Materials and Joint Results under the MTEA and are therefore co-owned by BASF. JMOL of co-ownership of the '579 and '033 Patents is warranted.

The same is true with respect to the other Group A Patents—the '880 and '357 Patents—which CSIRO filed around the same time as the '579 and '033 Patents (approximately seven years after its collaboration with BASF). To be sure, the claims of the '880 and '357 Patents are not specifically limited to the enzymes of the MTEA. But that does nothing to change the fact that CSIRO obtained those patents based on the fruits of the BASF-CSIRO collaboration, and in order to shoehorn in claims that cover BASF's product. Indeed, the Court specifically found that "Proponents did not contest that the asserted Group A patent claims were modified in continuation applications to aim at BASF's LFK seed line." ECF No. 821 at 16;[4] *see also id.* (finding "specific combinations of genes [of the Group A2 Patent claims] are the same ones that

[4] The Court further found that Proponents "argued for and received a jury instruction that they were within their legal rights to target a competitor's product in their continuation applications." ECF No. 821 at 16.

BASF used in its LBFLFK Elite Event seed line . . . ."). The fact that CSIRO sought claims that are broad enough to capture—but are not specifically limited to—the enzymes listed in the MTEA and used in the joint constructs does not defeat BASF's co-ownership claim.

Based on the evidence adduced at trial, Proponents cannot genuinely dispute that CSIRO learned how its genes and BASF's genes worked in canola as a result of the MTEA and its collaboration with BASF. In an internal email discussing CSIRO's collaboration with BASF, Dr. Singh stated that based on the results of the MTEA, "10% DHA in canola is acheivable [*sic*]." PX-299 at CSI00142267 (Singh email attaching "090821 BASF-CSIRO Joint Evaluation Summary"), Ex. 23 hereto. Moreover, Dr. Singh confirmed his statements in PX-299 that the amount of data shared by BASF under the MTEA was "quite substantial" and of "extremely good value" at trial. *See* 10/21/19 Trial Tr. at 691:4-16, 693:4-11, 694:14-24 (Singh Direct), Ex. 9; *see also* PX-299 at CSI00142267, Ex. 23. The data regarding the joint constructs was of "extremely good value" because it allowed CSIRO to see how its genes and BASF's genes "were operating inside of canola." 10/21/19 Trial Tr. at 694:18-24 (Singh Direct), Ex. 9. CSIRO would not have had that data but for the collaboration with BASF. *See Id.* at 695:13-696:21 (Singh Direct).

In drawing the factually unsupported conclusion that there was no co-ownership of the Group A Patents, the jury was undoubtedly confused by Proponents' repeated reference to the Group A ***priority application*** (*i.e.*, PCT/AU2005/000571), which was identified in the MTEA as being owned by CSIRO. At numerous points during trial, Proponents made reference to that priority '571 application in a concerted effort to give the jury the false impression that the ***later-issued Group A Patents*** were identified as being owned by CSIRO, such that it was not possible for BASF to co-own the patents. For example, during the cross-examination of BASF's Dr.

Bauer, counsel for Proponents elicited testimony concerning certain patent materials identified in the MTEA; and that if a patent was identified in the MTEA as belonging to CSIRO, then it belonged to CSIRO only, meaning BASF could not be a co-owner of that patent. 10/23/19 Trial Tr. at 1241:5-11 (Bauer Cross), Ex. 24 hereto. Following that cross-examination, counsel for Proponents elicited testimony from their own witness, Dr. Singh, which was designed to create in the jurors' minds the sense that the '571 priority application was substantively no different from the Group A Patents. *See e.g.*, 10/28/19 Trial Tr. at 1615:14-1616:2 (Singh Rebuttal Direct), Ex. 14. And again in closing arguments, counsel for Proponents repeated that misleading assertion to the jury:

> What did CSIRO list on [the MTEA]? The patents. Second at the bottom of the list are the patent applications that were used to develop all of the Group A patents. They led to all of them. That patent application had already been submitted, and BASF acknowledged that it was CSIRO's property. And Dr. Bauer acknowledged that. He said that he couldn't go back in time; that information that he provided in 2008 couldn't have been used in the 2004 patent application.

10/31/19 Trial Tr. at 2076:15-24 (CSIRO Closing), Ex. 5.

Proponents knew that the timing of the '571 priority application and its identification in the MTEA had no relevance to the co-ownership issue. The Group A Patents were all filed after the MTEA and at least 11 years after the '571 priority application was filed. In fact, the Court admonished Proponents for making that exact assertion, calling it an attempt to mislead the jury, but Proponents pressed ahead anyway. *See* 10/23/19 Trial Tr. at 1241:14-21 (District Court), Ex. 24 ("It's my job to intervene when I think counsel is attempting to mislead the jury; ***for example, when you asked the question about the timing of the patents as if that was the only issue that mattered, which, of course, you know it isn't***. But this witness doesn't know at all.

He's then read something out of the deposition of the witness which didn't contradict him to create the impression that he was contradicting himself.") (emphasis added).

At bottom, the jury's verdict against a finding of co-ownership of the Group A Patents is unsupported by the evidence and is a result of jury confusion created by Proponents. This Court should grant BASF/Cargill's motion for JMOL that BASF co-owns the Group A Patents.

b) BASF Co-Owns the Group D and E Patents as a Matter of Law

The jury's verdict that BASF does not co-own the Group D and E Patents is likewise unsupported and contradicted by the evidence. Indeed, the fatty acid profiles claimed in the Group D and E Patents result from the exact construct design strategy specified in the MTEA, *i.e.*, "using omega3-specific Δ6-desaturases and fungal Δ15-desaturases." JX-52 at CSI00106428, Ex. 15; 10/28/19 Trial Tr. at 1573:9-1578:13, 1581:12-25 (Petrie Cross), Ex. 14.

To meet the stated objective of achieving a "quantum increase in EPA" and to "deliver optimal conversion of EPA to DHA," the MTEA contemplated three categories of joint constructs. The second category focused specifically on the use of "omega3-specific Δ6 desaturases" and "fungal Δ15-desaturases" to increase the amount of EPA. JX-52 at CSI00106428, Ex. 15 ("2. Combination of [BASF]-CSIRO: Exploiting the transfer from omega6- to omega3-pathways by increasing the amounts of omega3-precursors using ***omega3-specific Δ6 desaturases*** and ***fungal Δ15-desaturases***. [BASF] plans to generate four constructs with different combinations to cover the number of alternative genes."); *see also* 10/28/19 Trial Tr. at 1575:20-1576:20, 1581:16-25 (Petrie Cross), Ex. 14.

As the Group D and E Patents themselves reflect, that is the same construct design later used by CSIRO that resulted in the fatty acid profiles of the oils claimed in the Group D and E Patents, both filed after the MTEA. The Group D specification emphasizes that the omega3-specific Δ6 desaturase and fungal Δ15-desaturase combination is a "particularly advantageous

combination for efficient DHA synthesis[.]" JX-15 ('541 Patent) at col. 66:19-26 (CSI00008621), Ex. 25 hereto ("A particularly advantageous combination for efficient DHA synthesis is a fungal ω3-desaturase,[5] for example such as the *Pichia pastoris* ω3-desaturase (SEQ ID NO: 12) [a fungal Δ15-desaturase], with a Δ6-desaturase which has a preference for ω3 acyl substrates such as, for example, the *Micromonas pusilla* Δ6-desaturase (SEQ ID NO: 13) . . . ."); 10/28/19 Trial Tr. at 1574:13-24, 1575:20-1576:20 (Petrie Cross), Ex. 14. The Group E specification contains the same language emphasizing the advantageous combination of an ω3-specific Δ6 desaturase with a fungal Δ15-desaturase. JX-17 ('084 Patent) at col. 40:52-55, col. 62:38-45 (CSI00177366; CSI00177377) Ex. 26 hereto; 10/28/19 Trial Tr. at 1577:20-1578:13 (Petrie Cross), Ex. 14.

Further still, that gene combination (set forth in the MTEA) was emphasized in a counterpart paper to the Group D Patents, authored by the inventors, Dr. Petrie and Dr. Singh, and published in the journal PLoS One in 2012. *See* PX-122, Ex. 27 hereto; *see also* 10/28/19 Trial Tr. at 1571:17:-1573:24 (Petrie Cross), Ex. 14. There too, the inventors emphasized the importance of the combination of the ω3-specific Δ6 desaturase and fungal Δ15-desaturase in achieving the breakthrough reported in their paper. PX-122 at CSI00123407-408, Ex. 27; 10/28/19 Trial Tr. at 1573:9-24 (Petrie Cross), Ex. 14 (acknowledging his paper, PX-122, stresses the importance of the *P. pastoris* omega-3 delta-15 desaturase and the *M. pusilla*, omega-3 delta-6 desaturase). The paper further explains that the favorable fatty acid profile (the same one claimed in the patents) "was likely due both to the ω3 preference of the *M. pusilla* Δ6-

[5] The Group D specification further clarifies that the "more preferred embodiment" of the ω3-desaturase used in the invention is the fungal ω3-desaturase/Δ15-desaturase. JX-15 ('541 Patent) at col. 42:46-49 (CSI00008609), Ex. 25 hereto ("In a more preferred embodiment, the fungal ω3-desaturase is the *Pichia pastoris* (also known as *Komagataella pastoris*) ω3-deasturase/Δ15-desaturase (Zhang et al., 2008; Accession No. EF116884; SEQ ID NO: 12) . . . .").

desaturase and the presence of the broad-specificity *P. pastoris* ω3-desaturase [a fungal Δ15-desaturase]." PX-122 at CSI00123408, Ex. 27; 10/28/19 Trial Tr. at 1573:25-1574:8, Ex. 14. Dr. Petrie readily acknowledged at trial the importance of this gene combination. 10/28/19 Trial Tr. at 1573:9-1574:8 (Petrie Cross), Ex. 14. Dr. Petrie also acknowledged that the data reported in the 2012 PLoS One paper was disclosed in the Group D and E Patents, which, as discussed above, identified the same gene combination as "advantageous" in achieving efficient DHA synthesis. *Id.* at 1574:9-25, 1577:7-1578:13 (Petrie Cross).

The undisputed evidence adduced at trial established that BASF co-owns the Group D and E Patents under the MTEA. The jury's verdict to the contrary is neither reasonable nor supported by the evidence. This Court should grant BASF/Cargill's motion for JMOL that BASF co-owns the Group D and E Patents.

B. Alternatively, a New Trial Should Be Granted on the Issues Above

If the Court declines to grant Opponents' motion for JMOL, then Opponents alternatively request that the Court grant a new trial with respect to (1) written description of the Asserted Group A and Group B Patent Claims, (2) the date of conception of claim 1 of the '357 Patent and claim 2 of the '880 Patent, and (3) ownership of the Group A, D, and E Patents. For the reasons explained above, the jury's verdict that the Asserted Group A and Group B Claims satisfy the written description requirement is against the clear weight of the evidence, as is the jury's verdict that Proponents established, with corroborating evidence, that the alleged inventions of claim 1 of the '357 Patent and claim 2 of the '880 Patent were conceived by the inventors as of February 2003. *See Buckley*, 538 F.3d at 317 (new trial warranted when "the verdict is against the clear weight of the evidence"). The jury's verdict that BASF does not co-own the Group A, D, and E Patents is likewise against the clear weight of the evidence.

Additionally, in the absence of JMOL of invalidity of the Asserted Group A and B Claims for lack of written description, a new trial is warranted because of the prejudicial omission of Opponents' proposed jury instructions. "The legal sufficiency of jury instructions on an issue of patent law is a question of Federal Circuit law." *Bettcher Indus., Inc. v. Bunzl USA, Inc.*, 661 F.3d 629, 638 (Fed. Cir. 2011). A new trial should be granted when: (1) a proper objection was made to the instruction; (2) the instruction was legally erroneous; (3) the error had a prejudicial effect; and (4) an alternative instruction that would have remedied the error was requested. *Id.* at 639. As discussed *supra* (in § III.A.1.a), Opponents respectfully submit that the inclusion of Proponents' instruction on written description (10/31/19 Trial Tr. at 2040:11-13 (Jury Instructions), Ex. 5; 10/31/19 Trial Tr. at 2056:14-16 (Closing Arguments), Ex. 5) without Opponents' proposed clarifying instructions (*id.*; *see also* ECF No. 764 at 26) confused the jury into believing that Proponents were correct on the law and that Opponents were wrong.

Finally, as an alternative to JMOL of co-ownership of the Group A, D and E Patents, a new trial is warranted to prevent a miscarriage of justice stemming from the repeated misleading statements and arguments by Proponents' counsel. *See, e.g., Buckley*, 538 F.3d at 317; *Minter v. Wells Fargo Bank, N.A.*, 762 F.3d 339, 351 (4th Cir. 2014) (misleading statements of counsel warrant a new trial when there is a "reasonable probability that the conduct improperly influenced the jury in reaching its verdict"); *see also Bilenky v. Ryobi Techs., Inc.*, 115 F. Supp. 3d 661, 677 (E.D. Va. 2015) (same); *Okezie v. Leonard*, No. CBD 13-168, 2014 WL 7184748, at *3 (D. Md. Dec. 15, 2014) (granting a new trial where repeated improper statements of counsel went to the "core of the defense"). Courts may grant a new trial based on the totality of the circumstances, including "the nature of the comments, their frequency, their possible relevancy to the real issues before the jury, the manner in which the parties and the court treated the

comments, the strength of the case (*e.g.* whether it is a close case), and the verdict itself." *Minter*, 762 F.3d at 351. The Court should grant a new trial based on the totality of the circumstances here, including: (1) as discussed above (in § III.A.3.a), Proponents argued multiple times during trial and at closing arguments that the MTEA's listing of CSIRO's '571 ***priority application*** meant that BASF could not co-own the Group A Patents (10/23/19 Trial Tr. at 1240:14-1241:11 (Bauer Cross), Ex. 24; 10/28/19 Trial Tr. at 1615:14-1616:2 (Singh Rebuttal Direct), Ex. 14; 10/31/19 Trial Tr. at 2076:15-24 (CSIRO Closing), Ex. 5); (2) the repeated statements went to the core of the issue of co-ownership before the jury; (3) the Court has already recognized that Proponents' repeated arguments were misleading because the patents at issue were the ***later-issued Group A Patents*** (*see* 10/23/19 Trial Tr. at 1241:14-21, Ex. 24); and (4) the jury's verdict was against the clear weight of the evidence. Opponents respectfully submit a new trial is warranted under these circumstances.

IV. CONCLUSION

For the foregoing reasons, BASF/Cargill respectfully request that the Court grant JMOL that: (1) the Asserted Group A Claims are invalid for lack of written description; (2) the Asserted Group B Claim is invalid for lack of written description; (3) the alleged inventions of claim 1 of the '357 Patent and claim 2 of the '880 Patent were not conceived in February 2003; and (4) BASF co-owns the Group A Patents (*i.e.*, the '579, '357, '033 and '880 Patents), the Group D Patent (*i.e.*, the '541 Patent), and the Group E Patent (*i.e.*, the '084 Patent). Alternatively, BASF/Cargill respectfully submit that a new trial on these issues is warranted.

Dated: January 21, 2020

Respectfully submitted,

By: */s/ N. Thomas Connally*

N. Thomas Connally (VSB # 36318)
Thomas B. Hunt (VSB # 90803)
Emily A. Gomes (VSB # 87571)
HOGAN LOVELLS US LLP
8350 Broad Street
17th Floor
Tysons, VA 22102
Tel: (703) 610-6100
Fax: (703) 610-6200
tom.connally@hoganlovells.com
thomas.hunt@hoganlovells.com
emily.gomes@hoganlovells.com

Arlene L. Chow (admitted *pro hac vice*)
Ernest Yakob (admitted *pro hac vice*)
Takashi Okuda (admitted *pro hac vice*)
Jared S. Schubert (admitted *pro hac vice*)
Nitya Anand (admitted *pro hac vice*)
Una Chiao-Yi Fan (admitted *pro hac vice*)
HOGAN LOVELLS US LLP
390 Madison Avenue
New York, NY 10017
Tel: (212) 918-3000
Fax: (212) 918-3100
arlene.chow@hoganlovells.com
ernest.yakob@hoganlovells.com
takashi.okuda@hoganlovells.com
jared.schubert@hoganlovells.com
nitya.anand@hoganlovells.com
una.fan@hoganlovells.com

Anna K. Shaw (admitted *pro hac vice*)
HOGAN LOVELLS US LLP
555 13th Street, NW
Washington, DC 20004
Tel: (202) 637-5600
Fax: (202) 637-5910
anna.shaw@hoganlovells.com

Counsel for BASF Plant Science, LP and BASF Plant Science GmbH

/s/ Ahmed J. Davis
Ahmed J. Davis (Va. Bar No. 43982)
adavis@fr.com
Daniel R. Gopenko (Va. Bar No. 83932)
gopenko@fr.com
Taylor Caldwell (admitted *pro hac vice*)
tcaldwell@fr.com
FISH & RICHARDSON P.C.
1000 Maine Ave., SW
Suite 1000
Washington, DC 20024
Telephone: (202) 783-5070

Christopher R. Dillon (admitted *pro hac vice*)
cwd@fr.com
FISH & RICHARDSON P.C.
One Marina Park Drive
Boston, MA 02210-1878
Telephone: (617) 542-5070

Michael E. Florey (admitted *pro hac vice*)
florey@fr.com
Elizabeth Flanagan (admitted *pro hac vice*)
betsy.flanagan@fr.com
Brianna Chamberlin (admitted *pro hac vice*)
chamberlin@fr.com
FISH & RICHARDSON P.C.
3200 RBC Plaza
60 South Sixth Street
Minneapolis, MN 55402
Telephone: (612) 335-5070

Dexter Whitley (admitted *pro hac vice*)
whitley@fr.com
FISH & RICHARDSON P.C.
1180 Peachtree Street NE
21st Floor
Atlanta, GA 30309
Telephone: (404) 892-5005

Counsel for Cargill, Incorporated

CERTIFICATE OF SERVICE

I hereby certify that I have on this 21st day of January 2020, electronically filed the foregoing with the Clerk of Court using the CM/ECF system which does send notification of such filing to all counsel of record.

By: */s/ N. Thomas Connally*

N. Thomas Connally, III (VSB # 36318)
HOGAN LOVELLS US LLP
8350 Broad Street
17th Floor
Tysons, VA 22102
(703) 610-6100
tom.connally@hoganlovells.com